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ABSTRACT

The Arizona Course Instructor Evaluation Questionnaire (CIEQ) was designed to assist individual instructors in improving teaching methods and courses. Secondary uses include faculty evaluation, research, and course and instructor selection by students. Successive refinements of the criginal pool of 1,000 items by factor analysis and subjective expert judgment led to the current 21-item instrument with five subscales: general course attitude, method of instruction, course content, interest and attention, and instructor. Internal consistency reliability coefficients on the. subscales ranged from .80 to .98. Mormative data based on class means we re collected from 16,000 course sections at two universities, and. 6,800 sections nationwide. The data compared results of student ratings by course level (from freshmar to graduate); proportion of reguired enrollment, and instructor rank. The first two variables y lelded significant validity effects. No normative data were provided for variables having little or no relationship to student. ratings -- class size, sex of student and instructor, time of day, and semester. (The current CIEQ, step by step instructions for interpreting the items and subscales, and 32 normative data tables are appended). (CP)

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ARIZONA COURSE/INSTRUCTOR EVALUATION QUESTIONNAIRE (CIEQ)

RESULTS INTERPRETATION MANUAL

• FORM 76

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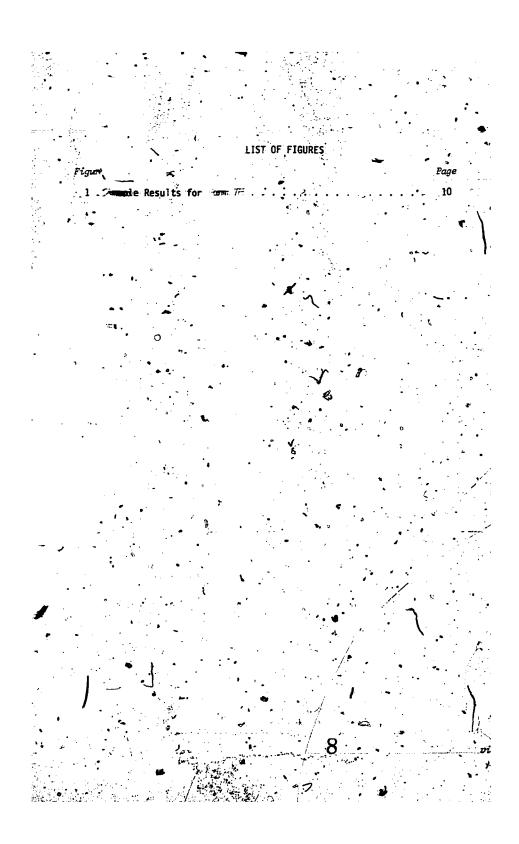
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ARIZONA COURSE/INSTRUCTOR EVALUATION QUESTIONNAIRE (CIEQ) RESULTS INTERPRETATION MANUAL

FORM 761

Introduction

If none assumes that the purpose of education is to change student mulausion as a result of some definite course of instruction, then an objective of educational research should be to determine what procedures or techniques shest produce the desired behavioral changes can be identified and defined, then the educational researcher can develop insulponents to measure them.

The uskalso assume that if one does in fact change student behavior in the specified direction as a result of a course of instruction, then there course has been effective. If that course has been effective, then there could be a large number of elements in that course contributing to its effectiveness, such as the instructor, textbook, homework, course content, method of instruction, student interest, student attention, general student attitude toward the course, etc.

Assuming that all of the elements enumerated above can affect, directly or indirectly, student behavior in a course, and assuming that the saudents are the only ones who are constantly exposed to those elements, then they mappear to be the most logical evaluators of the quality and effectiveness of the course elements. Im-addition, student opinions should indicate areas of ramport, degrees of communication, or the existence of problems and thereby help sustructors as well as educational researchers describe and define the learning anvironment more concretely and objectively than they could through other types of manusurement.

There are various ways of sampling student opinion. Some useful immormation can be derived simply by determining the number of students who agree om disagree with certain statements about the course. On, sometimes it process useful to ask students to write short essays about the course in order to obtain information about their experiences under specific instructional situations. Such imminished in its procedures do not, however, provide an opportunity to compare the results of one course with results of another. Measurement is more useful when comparative results are available. More adequate interpretation may occur when: (a) make data have been collected in a standardized fashion with appropriate attention given to sampling, reliability, and validity, and (b) many instructors and instructional programs have been measured with the same instrument so that comparisons can be made.

The Arizona Course/Instructor Evaluation Questionnaire (CIEO) was designed to collect student attitudes toward courses and instructors and to enable faculty members to collect evaluative information about their teaching. Interpretative

¹ Form cupyrighted by Lawcence M. Aleamoni, 1975

information and manufacture comparisons are made available to each instructor so that he/she made a submit copies of CIEQ results to the department for instructional consideration considerations and/or to ASUA student publications for student manufacting courses. More formalized use of CIEQ results in administration considerations, and tenure should take into account suggestions and account suggestions and account suggestions and account suggestions are account suggestions and account suggestions (Alexanoni, 1976; Note-1).

Development of the Form

The primary pumpose in developing the Arizona CIEQ was to device an instrument which comild elacit student opinions about a standardized set of statements relative to contain standardized espects of an instructional program, and to develop norms which moved enable an instructor to adequately compare his/her results with the results of other instructors.

After a compough review of questionnaires developed at other universities through 1961 (Alexandri & Spencer, 1973), it seemed necessary to develop an instrument which would differentially tap the attitudes of students. This instrument was to be developed in such a way as to obtain results on those elements william the learning situation which relate to learning as well as to teaching.

Criterimsfor effective instruction were cuiled from the extensive literature on the subject and then items were constructed and assigned to the various criteria on the basis of them face validity. Approximately 150 separate items were developed in this manner. Additional items were obtained through the work of a faculty committee investigating effective instruction at the Pennsylvania State University. A student committee, also at Pennsylvania State, was asked to submit items. As a result a pool of over 1,000 items was obtained and then administered to 1,200 undergraduate students at the Pennsylvania State University in fall 1962. The response scale for those items consisted of five points (strongly agree, agree, uncertain, disagree, strongly disagree). In the resulting analysis, many items were deleted because they supeared to be measuring much the same thing as other items, and some were dropped because they did not differentiate administered to another sample and reanalyzed, yielding a third reduced form containing 100 items. This form was administered to 1,319 undergraduate students in accounting, anthropology, Army ROTC, history, mathematics, music, psychology, and zoology courses at the Pennsylvania State University.

The number of items continued to be reduced by further reanalysis involving the use of factor analysis until 28 relatively distinct items were obtained. Results of the above analyses indicated that a large number of saudents' responses were falling at the neutral position on the response scale and that careless and invalid responding was the rule on a significant proportion of the questionnaires. Therefore, a forced choice answering technique was adopted to handle the scale problem by eliminating the neutral position. In addition, a response set score was developed to handle the careless responses by constructing 22 negatively stated items that expressed roughly the same concepts as 22 (out of 28)

corresponding positively stated items. This, then, resulted in a final version of the Questionnaire being produced in 1965 called the Illinois Course Evaluation Questionnaire (CEQ) Form 66 which contained 50 items (Aleamon & Spencer, 1973).

Subscale Development

A-principal components analysis with a VARIMAX rotation was used on the initial and all other versions of the CEQ and resulted in the same six subscales (or factors) being defined. These subscales were labeled General Course Attitudes Method of Instruction, Course Content, Interest and Attention, Instructors and Specific Items. Each subscale contained eight items except for the Specific Items subscale which contained 10. The percent of variance in student scores which is generally accounted for by each of the factors is shown in Table 1 for the initial 1,200 sample, and has remained relatively the same for all subsequent factor analyses of the CEQ Form 66. The number of questionnaire Items composing each Factor is also indicated.

The subscale correlations based upon the initial administration of the 1,000 item questionnaire to the 1,200 students are presented below the main diagonal in Table 2 and clearly indicate that there is a moderate to high relationship between the subscales. However, since the correlations between the scores of any two subscales are slightly to substantially lower than the reliability of either of the subscales, it may be concluded that each of the subscales is measuring, in part, something which is unique. These correlations also remained quite stable when calculated for subsequent versions of the questionnaire. For example, the subscale correlations for data gathered in a sample of 5,294 course sections using Form 66 up through 1970 are also presented in Table 2 and appear above the main diagonal. Subscale VII represents a composite of the other six subscales.

The fact that "General Course Attitude" accounted for the largest proportion of variance indicates that there is probably some general factor underlying the responses.

The CEQ Form 66 persisted from 1965 to 1972 until a detailed analysis of the data gathered from 1966 to 1970 indicated that it was possible to further reduce the total number of items in the questionnaire. Intercorrelations of the 50 items were generated for 5,346 course sections (2,784 from UIUC and 2,562 from other colleges and universities throughout the United States), then grouped by subscale. As a result of this analysis, a revised form (Form 73) was generated which still yielded the subscales labeled General Course Attitude, Method of Instruction, Course Content, Interest and Attention, and Instructor Specific. However, each new subscale contained only four items, except the Instructor Specific subscale which contained five. An additional experimental two item Instructor General subscale was added to make Form 73 a 23 item instrument. Form 73 retained the five original CEQ subscales and reflected results of the earlier reliability and validity studies. The positive versus negative item redundancy scale was eliminated since if appeared that careless responding was no longer a problem (Brandenburg & Aleamoni 1976).

In 1975 a reanalysis of the 50\item intercorrelation matrix and deletion of

1 1



TABLE 1

Factors Obtained from the Final 50 Item Questionnaire .

Factor (Subscale)	Number of Items In the Factor	% Variance	ه مرن
I. General Course Attitude	8 3	30	, ,
II Method of Instruction	. 8	6	4
III Course Content	8	· -5	
IV Interest and Attention	8	4	
V Instructor	8	3	-
VI Specific Items	10	3	

TABLE 2

Correlations Among Subscores

•	7. I G	II .	111	IV	v	VI	AII	.:		
L	1.00	.67	.71	.78	48	.62	.86			
.11	.67	1.00	.65	. 68	.55	83.]	.87		,	•
III	.72	.65	1.60	64	.48	.74	.84		•	
IV	.77 🛰	•.69	.64	1.00	.52	.59	.'86	•.*	-	
V	.47	.55	.46	. 52	1.00	. 50	.70	•		
					.49			:	•	•
vii	.86	. 87	.83	87	. 69	.82	1.00			

the experimental two item instructor General subscale resulted in the production of a 21 item instrument. Additional refinements of the 21 items and their response scale yielded the present version of the questionnaire entitled the Arizona Course/Instructor Evaluation Questionnaire (CIEQ) Form 76 (see Appendix A)

Normative data used to report deciles for Form 66 were temporarily adapted to Form 73 and later replaced with Form 73 normative data. Form 76 utilizes the normative data gathered on Form 73 from 1972 through 1975, as well as normative data gathered on Form 76 from 1976 through 1978.

Reliability

Reliability of measurement may be defined in two ways. First, it is the instrument's capability of producing responses which are consistent from one occasion to another for the same group of respondents. This capability is described by a coefficient of stability. Reliability may also be defined as the capability of producing consistent responses on any given occasion. This capability is described by a coefficient of internal consistency.

For the CIEO, the focus of concern is the reliability of each single instructor's rating; i.e. the mean score based on student responses within a single course section. Therefore, a coefficient of internal consistency is reported to the instructor of each class evaluated.

Reliability is directly related to the standard error of measurement for any given score. For CIEO mean ratings, standard errors of measurement are reported with reliability coefficients.

1 Reliability and standard errors of measurement for subscales. In a study of ratings gathered in 5,346 course sections using the CEQ Form 66, the range of internal consistency coefficients on the subscales was from .80 to .98 (Gillmure, Note 2).

The data in Table 3 present the stability reliability coefficients, the standard deviations (SD), and the associated standard errors of measurement (SEM) for the CIEO subscales using the data gathered on the 5,346 class sections (Gill-more, Note 2).

Stability Reliability Coefficients, Standard Deviations, and Standard Errors of Measurement for CIEQ Subscales.

Subscale	Reliability	SD	SEM.
General Course Attitude	.98	/34	•.05
Method of Instruction	. 9 8	40	.06
Course Content	.88	.25	.09
Interest and Attention	.98	.40	.05
Instructor	÷.92	.28	.08,
Total	.96	.29	.06 ^气

2. Item reliabilities and Standard errors of measurement. CIEQ item reliabilities, standard deviations, and standard errors of measurement reported in Table 4 were also derived from the data on the 5,346 class sections. The reliability coefficients are stability coefficients for each item, based on responses of approximately 20 students and computed by one-way analysis of variance. (It is impossible to calculate internal consistency estimates for a single item.)

CIEQ Item Reliabilities, Standard Deviations, and Standard Errors of Measurement

_•				
Item	No.	Reliability	·SD~	SEN
1	7	. 84	.39	.16
2		.86	.46	. d. 17
3		.87	.43	.15
4		.94	.43	.11
5	•	.87	.45	:.16
6	•	.83 * `	.38	.16
7		84	.41	. 16
. 8		.81	32	. 15
, 9		.82	.36	.15
10		.86	.42	.°16
11	.4 .	.85	. 39	15
-12	-	.82	.38	:16
13	·	.89	.45	, 15
14		.82	.30 "	.13
_ 15	•	.83 [¢]	.42	1.17
16	•	. 86	.41	.15
17		.85	.41	.16
18	•	.88	.44	.16
19	-	.84	41	.16
20	-	.83	.36	•
21	• • •	.63 .85	.36	.15
			.30	.14

Validity

1. Validity evidence. To validate something one must have a criterion measure for comparison. One criterion measure that can be used to validate student rating forms is how well the items and subscales measure what is intended

(called content validity). This is usually accomplished by carefully constructing the instrument so that it contains items and subscales that will yield measures in the areas that are considered appropriate by an individual or group of experts in the field under consideration. Most student rating forms are validated by using this approach (Costin, Greenough, & Menges, 1971). Statistical tools like factor analysis have also been used to verify subjectively determined dimensions of the instructional setting and process. Both statistical (factor analysis) and subjective expert judgments were used in generating the items and subscales that make up the CIEQ form (Aleamoni & Spencer, 1973).

Other criterion measures have been suggested for validation of student ratings. Some of those are peer (or colleague) ratings, expert judges' ratings, student learning, etc. Studies in which student ratings were compared to: (a) colleague rating (Aleamoni & Yimer, 1973; Guthrie, 1954; Swanson & Sisson, 1971); (b) expert judges 'ratings (Stallings & Spencer, Note 3), and (c) student learnin measures (Cohen & Berger, 1970; Frey, 1973; Frey, Leonard, & Beatty, 1975; Gessne 1973; Sullivan & Skanes, 1974) have indicated the existence of high positive correlations which can be considered as providing additional validity evidence.

2. Validity information for CIEQ interpretation. In gathering validity, information it is necessary to decide how to use results of the various investigations on the CEQ. For example, studies comparing results of student ratings by: (a) whether the student was taking the course as a requirement or on an elective basis (Costin et al., 1971, Aleamoni & Thomas, Note 4; Gillmore & Brandenburg, Note 5), and (b) the level of the course (Aleamoni & Graham, 1974; Costin et al., 1971; Aleamoni & Thomas, Note 4) yielded significant effects. Such effects, however, can be controlled through the use of appropriate normative data, an important feature of results reported for the CIEQ. The rank of the instructor (Aleamoni & Graham, 1974; Costin et al., 1971; Guthrie, 1954; Aleamoni & Thomas, Note 4) seems to have some effect, but usually not statistical significant. However, for faculty who wish to make differential comparisons by rank, normative data are provided for this variable on the CIEQ.

Studies concerning the: (a) size of the class (Aleamoni & Graham, 1974; Costin et al., 1971; Guthrie, 1954; Aleamoni & Thomas; Note 4; Batista & Branden-burg, Note 6), (b) sex of the student and sex of the instructor (Costin et al., 1971; Aleamoni & Thomas; Note 4; Aleamoni, Note 7), (c) time-of-day the course was offered (Yongkittikul, Gillmore), & Brandenburg, Note 8), and (d) term (or semester) the course was offered (Costin et al., 1971; Aleamoni, Note 7) indicate that these variables had little or no relationship to the student ratings and therefore, no normative data comparisons are provided for these variables on the CIEQ.

Use and Interpretation of CIEQ Data

Recommended Uses and Administrative Procedures

The CIEQ was designed to provide information that can be used to assist individual instructors in improving teaching procedures and courses. Secondary uses of CIEQ data have also been identified. These are: (a) administrative uses (input for promotion, tenure, merit pay decisions), (b) use by students in selecting courses and instructors, and (c) research. Current policy permits

O

administrative and student use of CIEQ results only in cases where the instructor formally sanctions such use:

When CIEQ results are to be used administratively, it is highly desirable that those sets of data be collected under common conditions. Some evidence indicates that directions given to student raters prior to completing evaluation instruments may influence their ratings. One study (Aleamoni & Hexner, Note 9) demonstrated that when students are told results will be used for making rank, pay, or tenure decisions, ratings will be more positively biased and have less variability than those collected for feedback alone. Another study failed to corroborate this finding (Centra, 1976); however, until additional evidence is forthcoming, standardization in administrative procedures is recommended. Suggested sets of directions are as follows:

EXAMPLE SET A

"This Course/Instructor Evaluation Questionnaire is one that some of you may have used in the past. The purpose of this administration is to provide of me with evaluative feedback on your perceptions of this course. Analysis of the results include comparisons of this course to others offered on this campus, but they will not be sent to me until after final grades are reported. Your complete cooperation will be appreciated..."

(Pass out the questionnaires, optional items--if used--and #2 pencils--if available.)

"May I have a wolunteer to collect the forms, place them in this envelope along with a form I must fill out, and then place the envelope in Campus Mail.

(Decide on a student.")

"Use ONLY A'PENCIL--PREFERABLY A'#2--in marking the forms. DO NOT use X's, check marks, or any marks other than a vertical bar between the brackets for each answer. If you must erase, do so COMPLETELY as an incomplete erasure may be scored as an intended answer....

"Turn to the BROWN side of the form....and complete all information at the top....Please be certain you have filled in the box on the far right hand side labeled "Course Code"....

"Enter the appropriate responses for Standard Items 1-21 (and optional items, if any)....When finished with the front side, turn the questionnaire over and respond to the subjective items on the back."

EXAMPLE SET B

This Course/Instructor Evaluation Questionnaire is one that some of you may have used in the past. The purpose of this administration is two-fold, first to provide departmental decision-makers with information for making rank. pay, and tenure judgments on me, and second to provide me with evaluative feedback on your perceptions of this course. Analysis of the results include comparisons of this course to others offered on this campus, but they will not

be sent to me until after final grades are reported.

The rest of the directions would be identical to those in Example

Note that Example Set A specifies use for feedback purposes only. collected after these directions should not be compared with data collected following directions like those in Example Set B.

Description of Results

For the following discussion on interpretation of CIEO results, the reader should refer to the sample output in Figure 1, beginning at the top

COURSE IDENTIFICATION INFORMATION

Course Code and Instructor Name

Course Name and Number

Additional Identifying Information (erg., Department Code)

2. STUDENT -DATA (Appears Before Standard Item Information)

Student Status: The proportion of freshmen, sophomores, juniors, seniors, graduate students, and others.

Pass-Fall: The proportion of students taking the course on a pass-fail . Dasis or not. · Jages

Course Option: The proportion of students taking the course to fulfill a requirement or who chose it as an elective.

Saxs. The proportion of males and females.

Expected Grade: This is presented as the proportion of students who expect an A, B, C, D, or E.

Major-Minor: The proportion of students taking the course as part of their major, minor, or other.

Sembater: The semester (fall, spring, or summer) in which administration

Sample Size: The number of students responding to the CIEO is presented below the subscale results on the second page.

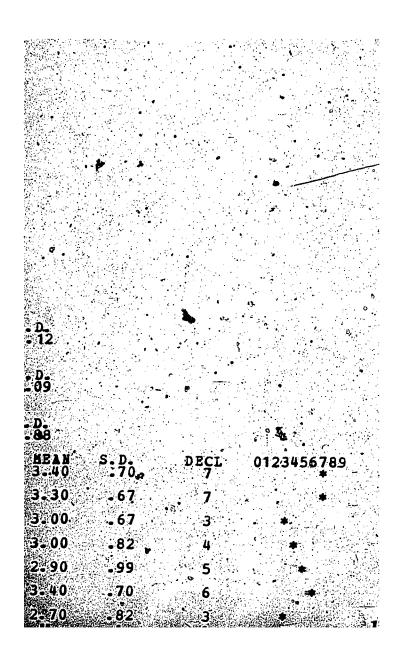
NOTE: The student data are presented so that the instructor may compare the student characteristics of one coursessection to another. Should CIEC results differ from one section to another, attention to differences in Student characteristics may lead to a more adequate understanding or interpretation of these differences. (This was bound to be the case for the required-elective characteristic [Gillmore and made and made to be the first the required-elective characteristic [Gillmore and made and made to be the section of the required-elective characteristic [Gillmore and made and made to be the section of the required-elective characteristic [Gillmore and made and made to be the section of the secti separate norm tables were generated for certain contegories of this variable

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Figure 1 (continued)
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        SOME DAYS I WAS NOT VERY INTERESTED IN THE COURSE I THINK THAT THE COURSE WAS TAUGHT
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and are presented in Appendix E.)

GENERAL ITEMS (From the Course Information Section.

The results for these three items (Rate the Course Content, Rate the Major Instructor, and Rate the Course in General) are presented according to the proportion of students who responded "Excellent", "Very Good", "Good", "Fair", "Poor", and "Very Poor". To the right of each set of proportions the mean and standard deviation (SD) are printed. The mean value is calculated by letting. "Excellent" = 6, "Very Good" = 5, "Good" = 4, "Fair" = 3, "Poor" = 2, and "Very Poop" = 1.

STANDARD TIEM RESPONSES 1-21

Several columns of information reporting students' responses for each item are presented following the student data. The actual items are also printed to the left of this information. For explanatory purposes, the sample results presented in Figure 1 have lettered codes printed at the bottom of each column. The interpretation of each lettered column is as follows:

- A: Contains the ITEM number
- B: The proportion of students agreeing strongly (AS) with this item.
- C: The proportion of students agreeing (A) with this item.
- D: The proportion of students disagreeing (D) with this item.
- E: The proportion of students disagreeing stradgly (DS).
- F: The propolition of students leaving this item blank (OMIT):
- G: This column indicates the most favorable responses for each item, either AS or OS. On Form 76 all of the items are assigned the most favorable response of AS and 10 are assigned the most favorable response of DS.
- H: The numerical average (MEAN) of the AS, A, D, and DS responses is presented for each item. The MEAN is obtained by weighting the positively stated items, AS = 4, A = 3, D = 2, DS = 1, and the negatively stated items, AS = 1, A = 2, D = 3, and DS = 4.
 - This column contains the standard deviation (S.D.) of the responses for each fiem.
- J: This column presents the all-university or coilege norm decile (DECL):
 i.e., a comparison of this class's MEAN responses with those obtained in other classes throughout the university or college. This comparison group is referred to as the "norm group". Deciles range from a low of 0 to a high of 9 and may be interpreted as follows:
 - O indicates that the course MEAN falls in the lowest 10% of the norm
 - 1 indicates that there are 10 to 19% of the norm gRoup who received
 - 2 indicates that there are 20 to 29% of the norm group who received lower means.

and so on, through 9.

The actual all-university norm decile intervals are presented in Appendices F and J.

Ks. The Decile Profile is presented in this column by printing an asterisk corresponding to the appropriate decile. The asterisks which are found on the right side of the column (deciles of 7, 8, or 9) are indicative that improvement is not necessary and should be considered "good". Those to the left (deciles of 0, 1, or 2) are indicative that improvement is definitely necessary and should be considered "poor". Those in the middle (deciles 3, 4, 5, or 6) should be considered "average".

5. SUBSCALE RESPONSES .

At the bottom of the second page of the results are the questionnaire SUBSCALES. You will note that there are five subscales and one total scale. The items which are grouped into each subscale are presented in Table 5. The subscale abbreviations are as follows: GCA = General Course Attitude, MI* Method of Instruction, CC = Course Content, I&A = Interest and Attention, I = Instructor, TOTAL = Total Scores Items 1-21. The total subscale score is an unweighted mean for the sum of all items.

- L: The number of ITEMS comprising the subscale.
- H: The percentage of students who responded (P/RES) to the items included in the subscale.
- N; The MEAN response based on the items in each subscale.
- O: The standard deviation (S.B.) of the responses.
- P: The reliability (REL) is based on an internal consistency calculation (coefficient alpha) which indicates the confidence one can place in the results for this group of students. Reliability figures over .90 can be considered very good, .65 and above are probably acceptable, and below .65 are questionable. Reliability figures below .65 may be due to small samples of students or very little variation in student responses.
- O: The RANK norm compares the course to all courses of instructors at that same rank. The actual norm decile intervals are presented in Appendices D and I.
- R: The LEVEL norm compares the course to all courses at that same course level (i.e., freshman, sophomore, junior, senior, or graduate). The actual norm decile intervals are presented in Appendices C and H.
- S: The institution (INSTIT) norm compares the course to all courses at that university (i.e., University of Arizona). The actual norm decile intervals are presented in Appendix B.
- T: The COLLEGE norm compares the course to all courses in the appropriate college within a university (e.g., Liberal Arts).
- U: The OVERALL norm compares the course to all courses that have used the CIEO throughout the United States. The actual norm decile intervals are presented in Appendix Gy



f: The department (DEPT) norm compares the course to all other courses in the appropriate department within the university (e.g., economics). (Required-elective horms are given in Appendix E according to three partitions of the proportion of students taking the course as a requirement and tabulated by level of course.)

TABLE 5 CIEQ Items Grouped by Subscale Ceneral Course Attitude It was a very worthwhile course. 6: NOT much was gained by taking this course. 15. This was one of my poorest courses. 21. Overall, the course was good. Method of Instruction 2. I would take another course that was taught this way.
7. I would have preferred another method of teaching in this course.
12. I learn more when other teaching methods are used.
18. I think that the course was taught quite well.

Course Content 4. The course material was too difficult.
8. The course material seemed worthwhile.
13. Some things were NOT explained very well.
216. The course content was excellent.

Interest and Attention 5. It was easy to remain attentive.
10. The course was quite interesting.
17. Some days I was NOT very interested in this course.
19. The course was quite boring.

- The instructor seemed to be interested in Students, as individuals.
- 9 The instructor seemed to the interested in Students as individuals.
 91 The instructor did NOT synthesize, integrate, or summarize effectively.
 11 The instructor encouraged development of new viewpoints and appreciations.
 14 The instructor demonstrated a thorough knowledge of the subject matter.
 20 The instructor seemed to consider teaching as a chore or routine activity.

Interpretation of Results

The items of the CIEO were not meant to be completely diagnostic of specific instructional settings, but they should serve to elicit diagnostic

interpretations from the instructor as he or she focuses on each area of concern. These areas of instructional concern can generally be identified by looking at the subscale information which follows the item response data. The following procedures have been found to be useful in working with instructor to improve their teaching performance. (Not all of the following points are necessary for each instructor to deal with.)

7.). Look at the column in the subscale area labeled "RFL"--this is the feliability of each subscale based on the items allocated to that subscale. If the reliability is less than .65, the subscale data are considered to be unreliable and they should not be used with confidence.

The only exception to this interpretation would be if all student responses tend to be the same resulting in a low reliability value, then the results would be considered consistent (e.g., all students agreed (A) with the items in the Instructor subscale).

- 2. If the "REL" figure is greater than or equal to .65, examine the "decile column for the norm group with which you are most interested in comparing yourself and your course: Use this general rule of thumb: the decile ranges of 0-2, 3-6, and 7-9 can be considered "poor", "average", and "good" categories, respectively, for each subscale.
- 3. If any one of your subscale deciles falls in the "poor" or "average" category, that is an indication of a student-perceived-notential (or actual) area of weakness in the course that needs attention.
- 4: The next step would be to look at each item in that subscale and its decile to try to determine the source of the difficulty. This process requires you to reflect on what has taken place in the course in conjunction with what the student responses to the items suggest as points or areas of difficulty or weakness. In order to assist you in determining the source of difficulty. Table 6-contains definitions and interpretations of the CIEO subscales from the point of view of student responses.

TABLE 6

Definition and Interpretation of CIEQ Subscales

General Course Actitude

This represents the students' overall perception of the course, taking into account all the elements that they have been exposed to over the duration of the course. Some of the criteria they use in responding to the items in this subscale are the following:

"Item 1: "It was a very worthwhile comme."

When responding to this item students are indicating that (a) the course was not a waste of time, (b) the course was helpful in their major area of study, (c) the course has practical applications outside of the institution, (d) they learned a great deal,



they felt the material was applicable in other situations, (f) they enjoyed taking the course.

Item 6: "NOT much was gained by taking this course." When responding to this item students are indicating that (a) there is a great deal of repetition of material from other courses (b) the course did not apply to their major area, (c) the instructor did not seem to know the material, (d) the class progress was too slow, (e) the class level was too elementary, (f) it was up to the student to glean relevant information, and (g) the students

may have learned something.

Item 15: "This was one of my poorest courses."

When responding to this item students are indicating that (a) it was the poorest based on the grades that they received, (b) they did not understand what the instructor wanted them to do, (c) there was a poor general understanding of what the instructor was trying to teach, and (d) it was the poorest based on their attitudes towards the course.

Item 21: "Overall, the course was good."

When responding to this item students are indicating that (a) they felt the material was applicable in other situations, (b) the instructor was organized, (c) the instructional materials held the students' attention, (d) the atmosphere was relaxed, allowing students to express themselves easily (e) there were good examinations, (f) they felt they were retaining what was taught, (g) they were attaining good grades, and (h) the course was able to hold their attention. their attention:

Low decile ratings on this subscale might indicate to the instructor that:

- 1. The course was viewed as a waste of time.
- The pace was too slow.
- 3. The level was too elementary.
- The students were not learning much new material.
- 5: He/She was not well prepared or organized.
 6. The objectives for student performance and the course
 7. The atmosphere in the class was not relaxed.
 8. Students did not feel free to express themselves.
- Students were not retaining what was taught:
- 10. The examinations were poor, as was the grading.

hod of Instruction

This represents the students' perception of how the course was taught, ing into account all the elements that relate to presentation of the subject ter and the involvement of students in the learning process. Some of the teria they use in responding to the items in this subscale are the following:

Item 2: "I would take another course that was taught this way When responding to this item students are indicating that (a) there was allowance for student participation, (b) they gained knowledge from this course, and (c) the instructor's personality entered into the way the course was taught.

Item 7: "I would have preferred another method of teaching in this course."

When responding to this item students are indicating that the method did not encourage them to learn very much.

Item 12: "I learn more when other teaching methods are used. Students interpret this item as it is written.

Item 18: "I think that the course was taught quite well." When responding to this item students are indicating that (a) they understood the material, (b) the course held their interest, (c) they were learning, (d) they desired to attend class, (e) the instructor might be willing to accept more than one point of view, (f) the instructor was interested in the course, (g) the subject matter was covered well. (h) they were inspired to do outside reading, (i) the tests were easy to follow, (j) what was taught made sense after the lecture was over, and (k) the instructor was able to use a variety of teaching methods because he/she under-stood the material. stood the material.

Low decile ratings on this subscale might indicate to the instructor that:

- The course and instructional objectives were not clearly stated.
- No allowance was made for student participation. His/Her personality interfered with the instruction.
- 4. The teaching methods used did not encourage the students to learn.
 5. The students did not understand the course material.
- 6. There was a lack of variety in presenting concepts, principles, ideas
- and examples. Classroom presentations were not well planned and organized, suggesting
- instructor disinterest in the course.

 B. The subject matter was not covered weld.

 Students were not inspired to do any outside reading.
- 10. The students felt he/she lacked an understanding of the material by
- not using a variety of teaching methods. Class time was used inefficiently.
- 12. Examinations were hard and considered unfair.

Courss Content

This represents the students' reactions to the course material including textbooks and examinations. Examples of some of the criteria they use in responding to each item in this subscale are the following:

"The course material was too difficult.

In responding to this item students are indicating that (a) it was hard to follow the instructor presented material and/or the textbook, (b) they were not able to clarify the material after the lecture—even with the use of the textbook, (c) the instructor was confusing them with complex vocabulary, and (d) the instructor's presentation was incomprehensible.

Item 8: "The course material seemed worthwhile."

In responding to this item students are indicating that (a) it is worthwhile knowing this material, (b) they can apply what was taught, (c) their general knowledge and appreciation of the material has been broadened, and (d) the material was relevant.

Item 13: "Some things were NOT explained very well."

In responding to this item students are indicating that (a) course content was not clarified, (b) material was passed over too quickly, (c) some material was not addressed in the lecture, (d) they considered material not explained very well to be unimportant and yet it appeared in an examination, and (e) explaining things is the instructor's responsibility.

Item 16: "The course content was excellent."

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In responding to this item students are indicating that (a) the course content made it easy to follow the textbooks (b) the materials. used in the class were excellent, (c) one did not need to follow the textbook, (d) the material was relevant, (e) they were interested in the material, and (f) all the material was covered extremely well by the instructor

Low decile ratings on this subscale might indicate to the instructor that:

- The course content needs to correspond more closely to the course and instructional objectives.
- The course material was not well organized and not well presented. The students general knowledge and appreciation of the material has not been broadened.
- The students are not able to apply what they were taught.
- 5. The course content is not current or relevant to student needs.
- A substantial number of points were not clarified.

 A substantial number of points were treated superficially. Many irrelevant and unimportant points still appeared on the examinations.
- The classroom course content was not well coordinated with the textbook outside readings, etc. The course material was uninteresting.

- The material was too difficult to understand. He/She confused the students with complex vocabulary.
- 13. His/Her presentation was incomprehensible. .
- He/She did not explain important points very well



Interest and Attention

This represents the students' perception of how well the course and instructor were able to hold their interest and attention during the class sessions. Examples of some of the criteria they use in responding to each item in this subscale are the following:

Item 5: "It was easy to remain attentive."

In responding to this item students are indicating that (a) they were attentive 100% of the time, (b) they did not have to force themselves to be attentive, and (c) they had to be attentive because of what was on the examinations.

Item 10: "The course was quite interesting."

In responding to this item students are indicating that (a) they enjoyed listening to the lecture, (b) they did not watch the clock, (c) they enjoyed the course, (d) the instructor was interested in the course, (e) the course stimulated their curiosity, and (f) the course stimulated them to do further work, in the field.

Item 17: "Some days I was NOT very interested in this course."
In responding to this item students are indicating that (a) their emotional problems had an affect, (b) the material was of no interest; (c) they were mentally exhausted from previous lectures that day, (d) the change in weather had an affect, (e) the instructor seemed preoccupied, and (f) events prior to the class had an affect.

<u>Item 19:</u> "The course was quite boring."

Students interpret this item as it is written.

Low decile ratings on this subscale might indicate to the instructor that:

- 1. He/She was not able to hold the students attention for very long.
- 2. The material needs to be organized and presented in a more stimulating
- 3. The lecture needs a touch of humor at atrategic intervals...
 47 All clocks and watches should be removed from the classroom.
- 5. More frequent student participation should be planned and encouraged.
- 5. The type and tone of the lectures needs to be varied.
- 7. Active learning experiences should be structured for the students.

Instructor

This represents the students' perception of the instructor's manner, personality, attitude, and effectiveness in the classroom. Examples of some of the criteria they use in responding to each item in this subscale are the following:

Item 3: "The instructor esemed to be interested in students as individuals."

In responding to this item students are indicating that the instructor (a) knew their names, (b) was willing to help them with their problems, (c) knew who they were outside of the class-room, (d) recognizes that students are having problems, (e) seems to respect student opinions, and (f) does not embarrass them by making them feel like dunces for asking certain questions or giving certain answers.

Item 9: The instructor did NOT syntahetze, integrate, or summarize

In responding to this item students are indicating that the instructor (a) did not repeat material at appropriate and necessary intervals (b) was not able to put together the various components of the learning experience so that the students could make sense out of it, and (c) only presented the various components of the learning experience and expected the students to put them together in a meaningful manner.

Item 11: "The instructor encouraged development of new viewpoints and appreciations"

In responding to this item students are indicating that the instructor (a) encouraged them to go beyond what took place in the classroom by recognizing their efforts and (b) was open and receptive to their opinions in the classroom.

Item 14: "The instructor demonstrated a thorough knowledge of the subject matter."

In responding to this item students are indicating that the instructor (a) exhibited flexibility in his/her presentation, (b) used different methods of presenting materials, (c) did not read from a book to the class, (d) knew the sources, references, and location of additional learning materials, (e) was able to answer their questions, (f) was able to conduct an effective lecture, (g) gave clear-cut answers to their questions and did not try to "bluff" them, (h) was able to present different interpretations of the material, and (i) did not hesitate to admit lack of knowledge in particular areas.

Item 20: "The instructor seemed to consider teaching as a chore or routine activity."

In responding to this item students are indicating that the instructor (a) is exhibiting a "here-we-go-again" attitude, (b) is not exhibiting much enthusiasm toward the material, (c) is insensitive towards students interests as they relate to the class; (d) tended to treat the classroom session more like a "bull session" rather than as a learning experience; and (e) were a bored or uninterested expression in the classroom.



Low decile ratings on this subscale might indicate that the instructor

Did not know the students names

Was unwilling to help students with their problems.

Did not recognize students outside of the classroom.

- Mas unaware when the students were having difficulty.
 Did not respect the students opinions.
 Embarrassed students by making them feel like dunces for asking certain questions or giving certain answers. Tended not to repeat material at appropriate and necessary intervals
- Did not integrate or synthesize the various components of the learning experience.
- Discouraged the students from going beyond the material presented in the classroom:
- Was not receptive to student opinions in the classroom. Was rigid in the presentation of the course material,
- Would read from a book to the class.
- Did not know the sources, references, and locations of additional 13. learning materials.
- Was not able to answer the students' questions.
- 15.
- Was unable to conduct an effective lecture. Did not give clear-cut answers and tried to "bluff" the students. 16.
- Tended to exhibit a "here-we-go-again" attitude.
- Did not exhibit much enthusiasm towards the material
- 19. Was insensitive towards students' interests as they related to the
- Tended to treat the classroom session like a "bull session" rather than as a learning experience.
- Created the impression of disinterest and boredom.
- 5. Concurrent with Step 4 you should also examine the responses students have made to the open-ended questions on the back of the form. This section provides students with a means of putting things "in their own words" and possibly expanding on questions asked on the front of the form. These responses may also be utilized in generating optional items for future use of the CIEQ. in your classes.
- 6. If you do not feel, after going through this process, that the source of difficulty has been adequately identified, then other procedures (such as the ase of additional diagnostic optional items, classroom visitation, video-taping, etc.) should be considered in future evaluations.
- 7. If you have administered the CIEQ to two or more similar sections. then you may compare the decile ratings of one section to those of another section to determine what instructional behaviors may have led to the higher decile ratings in one section. You may also want to use the optional item section to gather additional evidence.

An example of successful use of the above rocedures in improving college teaching can be found in Aleamoni's study entitled "The Usefulness of Student Evaluations in Improving College Teaching" (1978).

Normative Data

The normative data presented in this manual were collected at both the University of Arizona and the University of Illinois at Urbana-Champaign since 1972. To date approximately 15,217 course sections with a total of over 470,000 students represent the normative population. In addition, data on approximately 6,800 sections taught throughout the United States provide additional normative comparisons. Norms were based on class means; i.e., tiudent ratings from a single class were averaged to obtain a class mean. Therefore, the distributions presented are those of class means.

In order for a given class to have been included in the norms, at least, in the students in that class had to complete the questionnaire. Also, no means known to be biased were included in the norms (e.g., data collected for experimental purposes). With these exceptions, all data collected from lasses at the University of Arizona and from other schools were included in the norms. Norms for outside schools also include University of Arizona data.



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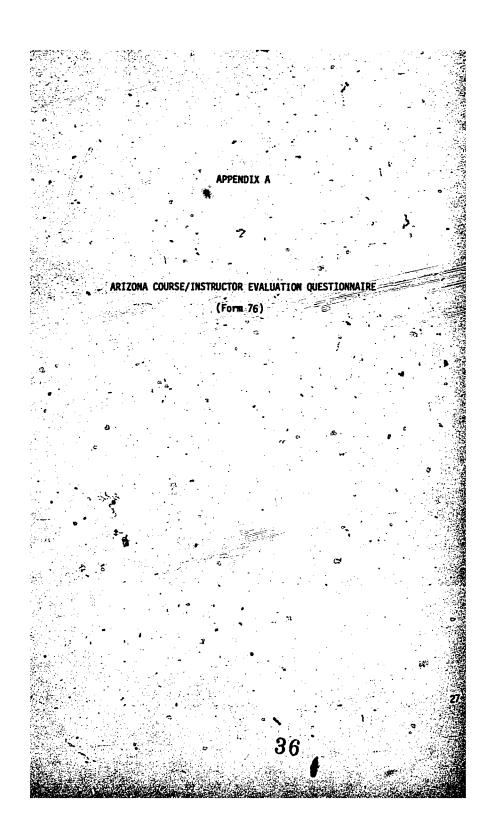
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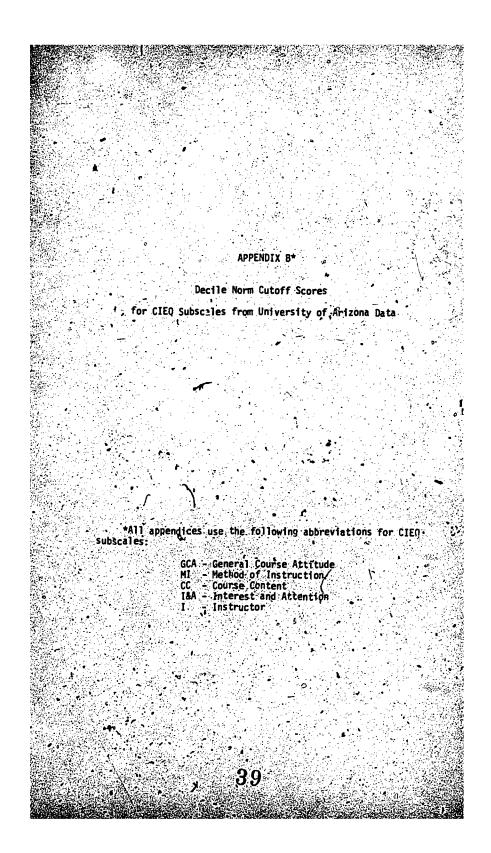




Table 7. Raw Score Intervals for CIEO Subscale Heans Based on 5,189 Class Sections at the University of Arizona Subscale Subscale GCA 1,000 2,885 2,885 3,045 3,165 3,265 3,365 3,485 3,685 3,685 4,000 3,228 392 HI 1,000 2,315 2,365 2,795 2,885 2,986 3,075 3,175 3,287 3,425 4,000 2,931 430 CC 1,000 2,285 2,715 2,815 2,905 2,998 3,085 3,185 3,285 3,395 4,000 3,000 ,523 IAA 1,000 2,285 2,745 2,835 2,765 2,875 2,985 3,095 3,185 3,285 3,355 4,000 2,852 421 I 1,000 2,755 2,755 2,885 2,885 3,085 3,185 3,285 3,355 4,000 3,240 ,340 TOTAL 1,000 2,555 2,745 2,885 2,985 3,085 3,175 3,285 3,385 3,485 4,000 3,059 ,359



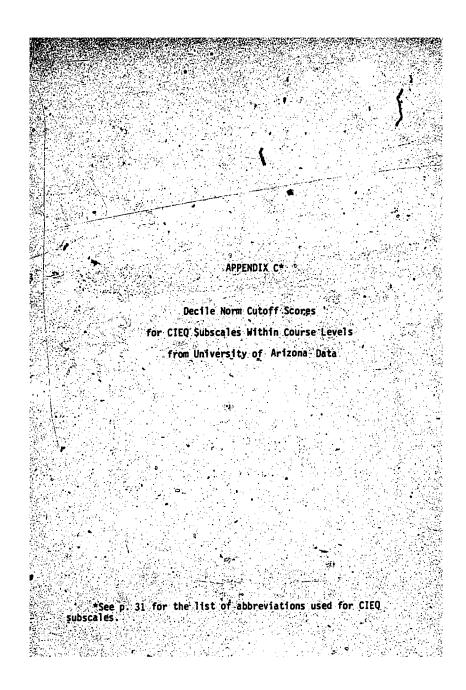




Table 8 Raw Score Intervals for CIEO Subscale Heans Based on I.24) Freshman Class Sections at the University of Arizona Subscale Decile Mean 5.D. GCA 1.000 2.635 2.625 2.965 3.073 3.175 3.265 3.375 3.465 3.505 4.000 3.151 368 MI 1.000 2.305 2.525 2.695 2.925 2.925 3.045 3.145 3.245 3.385 4.000 2.896 4.09 CC 1.000 2.515 2.655 2.745 2.825 2.925 3.045 3.145 3.225 3.000 2.925 3.06 IAA 1.000 2.215 2.405 2.555 2.755 2.085 2.925 3.085 3.185 3.325 4.000 2.765 4.00 I 1.000 2.725 2.885 3.015 3.125 3.205 3.285 3.565 3.445 3.555 4.000 3.173 3.227 TOTAL 1.000 2.505 2.685 2.805 2.925 2.995 3.095 3.195 3.285 3.005 4.000 2.992 3.342



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Table 9

Raw Score Intervals for CIEO Subscale Means Based on 952 Sophomore Class Sections at the University of Arizona

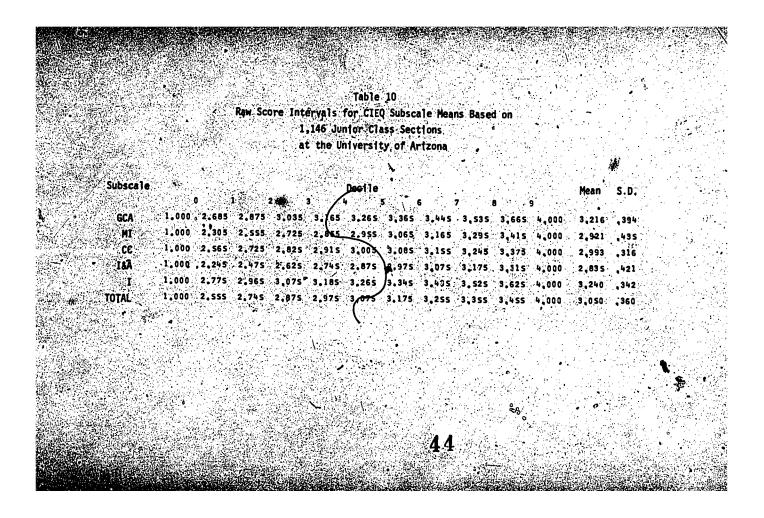
Subscale Decile For Farizona

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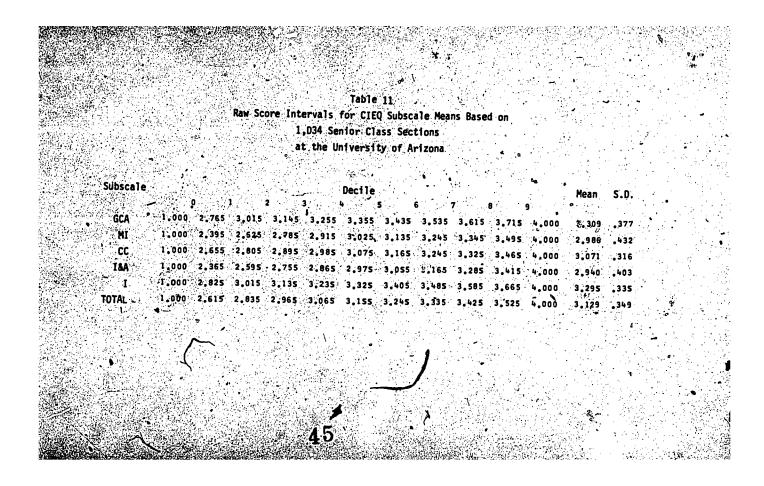
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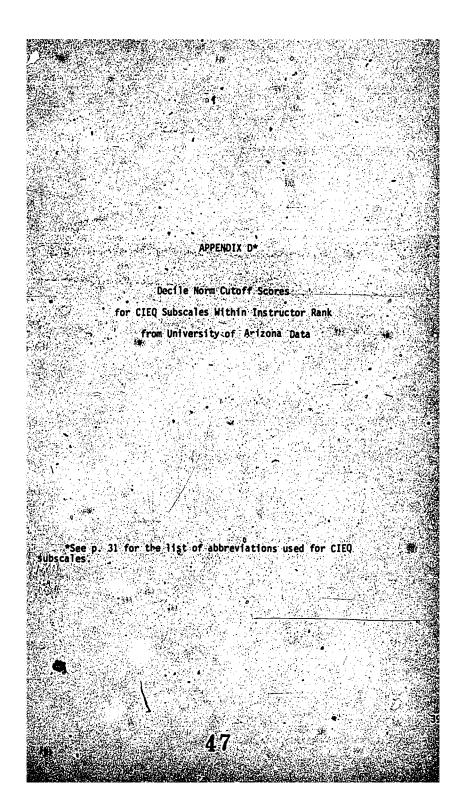




Table 13 Raw Score Intervals for CIEQ Subscale Means Based on 1,186aClass Sections Taught by Graduate Teaching Assistants at the University of Arizona

Sı	ıbsc	ale		!			er.			, t		De	cile	-						•	Mean	S.D.
·J				. 0	2	. D' 1	2.02	2		3	•	4		s ` `	6		7	•	8	9	A 2 22	•
	GCA MI																			4.000 4.000		
). 	CC																			4.000		
	I&A	9	1.0	00	2, 2	25	2.40	s į	, 51 s	2.	62S	- 2	715	2.8	l S	2.515	з.	035	3.189	4.000	2.724	.372
	1			-	1 5	*** * *.		1 / 15 m							4 22 2					4.000		
" TC	TAL		Ø1.0	00	2.5	05	2.67	5 2	.775	2.	865	. 2.	945	3.02	25	3.11S	3.	215	3.345	4.000	2.945	329









Table 17 Raw Score Intervals for CIEQ Subscale Means Based on 1,383 Class Sections Taught by Professors at the University of Arizona

<u>'</u>	Subsc	ale	•	100			177	Decile	•					Mean	S.D.	
•		•	*	0	1 :	2	3 .	4	5 () (6	7	8	9 -	, .	•	
	.GCA												4,000	3,259		
	MI	•	3.000	72.315	2.565	2.745	2.875	2.985	3.095	3.205	3,315	2.475	4.000	2.946	.451	
	CC	1	. 4.000	2.585	2,765	2.865	2.955	3.055	3,135	3.225	3.30	3,415	4.000	3_038	. 324	
	I&A	٠.٠	1.000	2.245	2.525	2.685	2.825	2.925	3.035	3.135	3.245	3.365	44000	2 889	1434	~-
			1.000	2.795	2.975	3.095	3,205	3.295	3,375	3.445	3.595	3.645	4.000	3.260	466	
1	TOTAL		1.000	2.555	2.775	2.915	3.025	3,115	3,215	3.305	3.395	3.505	4.000	1 087	.373	



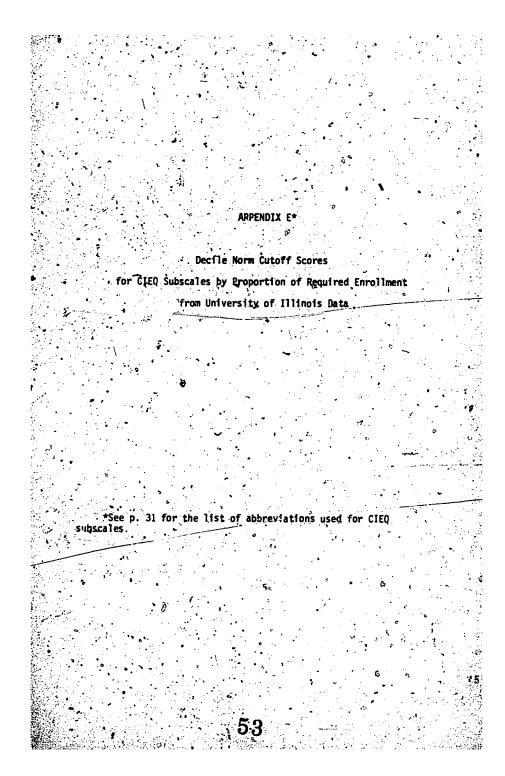




Table 18
Overall and Level Norms for Classes with Between 0% - 33% of
Students Required to Take the Course

Subscale	Course			•			Dec 11	e						
	Leve1*	_	0	1	2	3	4	.5	6	7	8 .		Mean	S.D.
	Overall	1.000		. 3.365	3.195	3.285	3,365	3.445	3.535	3,635	3.745	4,000		
	. A	1.000	2.805	3.055	3.205	3,295	3,365	3.435	3,525			4.000		
GCA	, B	1,000	2.835	3.025	3,125	3,215	3,295	3.375	3.495	3.555	3,695			•
	C ,	1.000	2,915		3.205		3.355		3.555	3.675	3.785	4.000	• •	
	<u>. D-</u>		3.005	3,135	3.285	3.375	3,495	3.555	3.645	.,3.795	3.895	4.000		
	Overall	1.000	2,615	2.805	2.935	3.055	3,165				3.555			
	Α .	1.000	. 2,605	2.855	2.995	3.095	3,185	3.265	3.335		3.505	4.000		
MI	- 8 -	1.000	2.545	2.765	2.925	2,995	3.085	3.175	3.245	3.365	1 495	4.000		
	C	1.000	2.655	2.775	2.905	3,015	3.145	3.245	3.325	3.425	3 575	4.000	•	
	D .		2,615	2.765	2.955	3.095	3,245	3.325	3,385,	3.495	3.655	\ 4.000		
	Overall.	1.000	2.805	2.955	3,025	3,125	3,195	3.265			3.525			
	Α,		2.775	2.935	3.025	3.135	3,215	3.265	3,315	3.385	3 495	4.000	2	
CC ·	B			2.935	3.005	3.085	3.175	3.215			3.435	4.000		
	C		2,835	2.965	3.025	3.095	3.175	3.245	3.315	3.395	3 555	4.000		•
	<u> D</u>		2.885	3.015	3,085	3.195	3.295,	3.345	3.425	3,495	3.685	4.000		
	Overall			2.745	2.875	2.995	3.095	13.175	3 275		3,495	4.000	 -	`
7.4	4 A	1.000	2,495	2.785	2.925	3.025	3.125	3.195	3.285	3.335		4.000	•	
I&A	В	1.000	2.465	2.665	2.775	2.885	3.005	3.075	3.155	3.275	3.425	4.000		
	C C				2.865	2.975	3.085	3.185		3,375		4.000		
	D ·	1.000	2.665	2.835	2.935	3.055	3,175	3,275	3,365	3.465	3.635	4.000		
	Overall		2.975			3.315	3.385	3:445	3,505	3.585	3.705	4.000		
	A	1,000	2.995	3.145	3.225	3,275	3.345	3.405	3.465	3.525	3.615	4.000		- '-
	В	1.000	2.835	3.035	.3.165	3.245	3.325	3.405	3,495	3.555	3.665	4.000		1
	<u> </u>	1.000	3.045	3:165	3.285	3.355	3.425	3.475	3,545	3.615	3.745	1.000		
	D		2,995		3,345	3,405	3.475	3.545	3.585	3.635	3.775	4.000	•	٠.
	Uverall		2.795		3.075	3,175		3,325	3.405	3,485		4.000		
TOTAL			2.795			3,195	3.265	3.315	3.375	3.455	3,535	4.000		
TOTAL	B /		2.645			3.105	3.175	3.265	3.355			4.000		
	Ĺ		2.835		3:085	3,145	3.245	, 3, 325	3.425	3.505	3.655	4,000		
the state of the s	. 11	1 000.	2,855 .		2.100	3.255	1		3,505	-				

A = Freshman/Sophomore C = Junior/Senior B = Sophomore/Junior D = Senior/Graduate



Table 19. Overall and Level Norms for Classes with Between 34% - 66% of Students Required to Take the Course

Subscale	Course				(e)		Deci1	е .				•		
	Leve1*		/0	1	2	. 3 `	4	5. •	6	7	8	9	Mean	S.D.
	Overall	1.000		2.825			3,125	3,215	3,315	3,415	3.555	4.000		
CCA ·	Α,	1.000	71.	S 2.70S	2,845	2.975	3.055	3,125		3,315				
GCA	В	1.000		S 2.835			3,115	3,215	3.305					
1	C	1.000	- 110	5 2,995		3.155	3,245		. 3.435			4.000		
 	<u>D</u>	1.000		5 2,995				3.375	. 3,495	3,615	3.785	4.000		•
	Overall.	1.000				T	2,965	3.045		3,225		-		
MT	. A	1.000	2.28		2.715		. 2.945	3,005	3,095	3,205	3,325	4.000	•	
MI	B.	1.000		5 2.625				3.035			3.345	4.000	.:	
	Ĺ	/ 1.000	2.53		2.865	-2,945	3.025	3,105	3.215	3,335	3,465	4.000		.* -
 	0	1.000	2,/44	5 2,645	2,67S	2,965	3.075	3,125	3.205	3,275	3.475	4.000		· · · · ·
	Overall	1.000	4,60	5 2.745	2.825	2,915	2.995	3.045	3,115	3, 125	3,335	4.000		
СС	A /	1.000	2.53	\$ 2.665	2.765	2.845	2,915	2,995	3.035	5,115	3,245	4.000		
	B	1.000		5 2.745		-	2,995	3.045	3,115	3,205	3,285	4.000		
		1.000		5 2.845			3.085	3,135	3,225	3,335	3,405	4.000	•	
	Overall	1.000	12.72	5 2,925	3,015	3,035	3,135	3.215	3,295	3,395	3,535	4.000		
	Overall		12.25	2.465	2,585	2,685	2.775	2,885	2,995	3,115	3,275	4,000		
18A	2			5 2.415	2,515	2,615	2.695	2.785	2.895	3.045	3,185	4.000		
•••	ř	1.000	2:29	2.405	2,575	2.655	2.755	2,835		3.075	3,215	4.000	o.	
	ň	1.000	Z. 44	5 2.655	2,745	2.835	2.955	3.005	3,105	3.255	3.365	4.000		
	Overall	1.000	2.80	5 2.725					3,215	3,335	3.50S	4.000		×
	A .	1.000	2.69					3,315	3,405	3,495	3,595	4,000		 -
	â	1.000	2.85			3.115			3,365	3.465	3.585	4.000	٠.	
	ŕ	1.000	-		3,105	3.175			3,335	3.485	3.S65	4.000		•
	ň.				3.125	3,215	3.315	3.375		3,525	3.655	4.000		
1.434	Overall	1 000	2 566	3,195	3,285	3,385					3,665	4.000		•
	Δ	1.000	2,303	2.765				3,125			3.435	4,000		
TOTAL	Ŕ					2.885	2.975	3.0SS	3.165		3.355	4.000	2.	· .
	'' Y F. 14		2.00	2.775	2.845	2.945	3.025	3.085	3,135	3.305	3.395	4.000		
		- 1 000	2 766	2 005	2 222									
	C	1.000	2.765	2.885	2.985	3.065	3,125	3.185	3.315	3,405	3.525			

A Freshman/Sophomore C = Juntor/Senior B = Sophomore/Juntor D = Senior/Graduate



Course Deci lé Subscale Leve1* Mean S.B. 4 5 2 3 2.605 2.755 2.885 1 2.995 3.105 3.225 .3.335 3.525 4.000 1.000 2,295 2.535 2.695 2.805 3.015 3.135 3.245 3,405 4.000 GCA 1.000 2.425 2.685 2.785 2.965 3.245 3.385 4.000 1.000 2.685 3.225 2.825 3.015 3.145 3.285 3.415 3,525 3.615 4.000 1.000 2.365 2.595 2.925 2.995 3.145 3.525 3.745 3.795 4,000 1:000 2:255 2.505 2.805 2,925 3.025 3.125 3.245 3,385 1.000 2.245 2.475 2.635 2.765 2.885 2.995 3.085 3,205 3.345 4.000 MI 1.000 2.245 2.665 2.815 2.935 3.055 3,155 3.265 4.000 1.000 2.495 2.595 2.755 2.935 3.045 . 3.125 3.225 3.305 4.000 1.000 1.995 2.325 2.975 3.025 3.245 3.405 3.535 4,000 Overall 2,695 1.005 2,425, 2,605 2.865 21965 3.035 4.000 A B 1.000 2.375 2.545 2,635 2.715 2.785 2.865 2.965 3.035 4.000 CC 1.000 2.535 2.665 2.755 2.845 2.925 3.025 3,065 3.215 3.365 4.000 1.000 2.605 2,775 2,905 2.995 3.035 3,115 3,205 3,285 3.355 4.800 1.000 2.535 2.825 2.895 3.025 3.095 3.225 3.365 4.000 1.000 2.435 2.575 2,685 2.795 2.885 3.015 3,215 4.000 1.000 2.205 2.355 2.495 2.615 2.729 2,925 3.095 4.000 181 1,000 2.275 2.475 2.625 2.605 2,695 2.815 2.915 3.045 3.245 4.000 1.000 2.495 2.765 2.865 2,995 3.095 3,195 3,305 4.000 D 2.005 2.365 2.745 2.875 2.995 3.375

3,255

3,235

2.925

3.005

3.115

3.325

3,305

3,335

3.375

3.345

3.065

3.015

3.075

3,195

3,405

3,385

3,415

3.425

3.495

3.155

3.105 3.165

3.295

3.485

3.465

3.515

.655

3.205

3.275

3.375

3.055

3.045

3.025

3.195

2.995

2.725

2,925

2.805

3,165

3.125

3,135

3.255

2.815

2.885

3.035

Table 20 Overall and Level Norms for Classes with Between 67% - 100% of Students Required to-Take the Course

A = Freshman/Sophomore C = Juntor/Sentor B = Sophomore/Junior D = Senior/Graduate

TOTAL

1.000

1.000

1.000

1.000

1.000

1.000

1.000

1.000

1.000

2.755

2.785

2.645

2.415

2.395

2.465

2.595

.385

2.925

2.925

2.765

2.625

2.575

2.665

2.815

2.835 3.045

3.575

3.595

3.5654

3.615

3.625

3.395

3.345

3.465

4.000

4.000

4.000

4.000

4.000

4.000

4.000

4.000

4.000

4.000

4.000



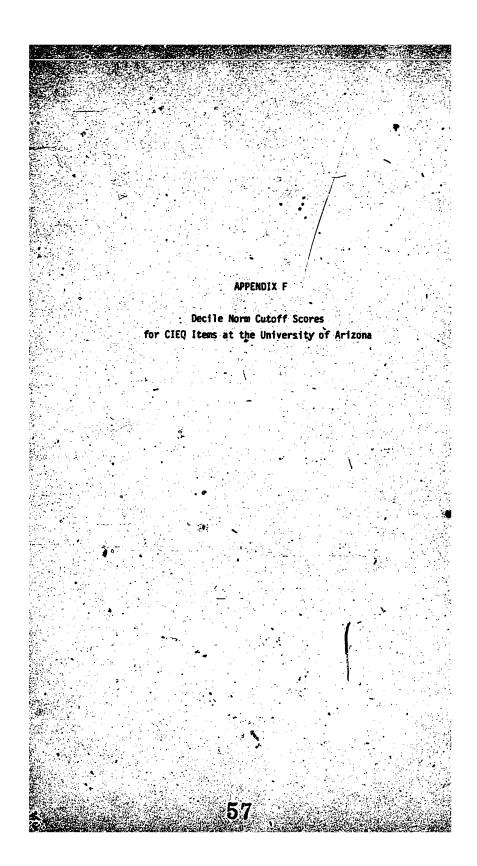




Table 21 -Raw Score. Intervals for CIEO Item Means Based on 5,189 Class Sections at the University of Arizona Item Decile 9 Mean S.D. 1 2 3 5 5 7 8 9 1 1 0000 2,385 2,685 3,035 3,155 3,285 3,375 3,485 3,585 3,705 4,000 3,231 ,408 2 1 1,000 2,735 2,285 3,035 3,155 3,285 3,445 3,585 3,705 4,000 3,016 ,472 3 1,000 2,735 2,285 3,105 3,235 3,485 3,585 3,685 3,785 4,000 3,016 ,472 3 1,000 2,735 2,285 3,105 3,235 3,485 3,385 3,885 4,000 3,105 308 4 1,000 2,745 2,285 2,995 3,075 3,145 3,215 3,305 3,385 4,000 3,155 308 5 1,000 2,725 2,295 2,685 2,795 2,2915 3,095 3,135 3,285 3,495 4,000 3,273 399 7 1,000 2,215 2,495 2,685 2,795 2,995 3,135 3,285 3,495 4,000 3,273 399 7 1,000 2,215 2,495 2,585 2,795 2,995 3,135 3,385 4,000 2,282 453 9 1,000 2,255 2,775 2,355 3,055 3,145 3,285 3,475 3,395 4,000 3,220 330 9 1,000 2,555 2,775 2,285 3,055 3,165 3,285 3,475 3,575 4,000 3,220 330 9 1,000 2,455 2,675 2,855 2,995 3,085 3,195 3,305 3,485 3,575 4,000 3,059 435



Table 21 (continued) 1.000 2.245 2.475 2.625 2.745 2.845 2.935 3.035 3.145 3.285 1.000 2.025 2.265 2.435 2.565 2.685 2.815 2.935 3.065 3.245 13 4.000 2.675 .462 2.975 3.165 3.295 3.395 3.495 3.575 3.665 3.735 3.835 1.000 2.625 2.855 2.995 3.125 3.225 3.325 3.435 3.545 3.665 4.000 1.000 2.335 2.555 2.705 2.825 2.975 3.075 3.175 3.315 3.495 4.000 17 1.000 1.785 1.965 2.095 2.205 2.325 2.445 2.575 2.715 2.925 4.000 1.000 2.365 2.645 2.825 2.965 3.075 3.175 3.295 3.415 3.565 4.000 18 3.029 .461 1.000 2.495 2.745 2.905 3.035 3.155 3.255 3.375 3.495 3.625 1.000 2.765 2.995 3.105 3.215 3.325 3.395 3.495 3.595 5.705 4.000 20 3,280 2,605 2,865 2,995 3,145 3,255 3,355 3,465 3,575 3,695 59



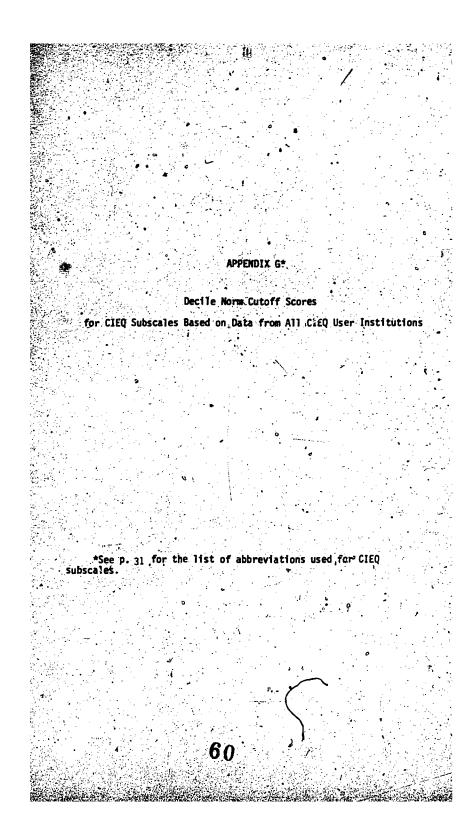
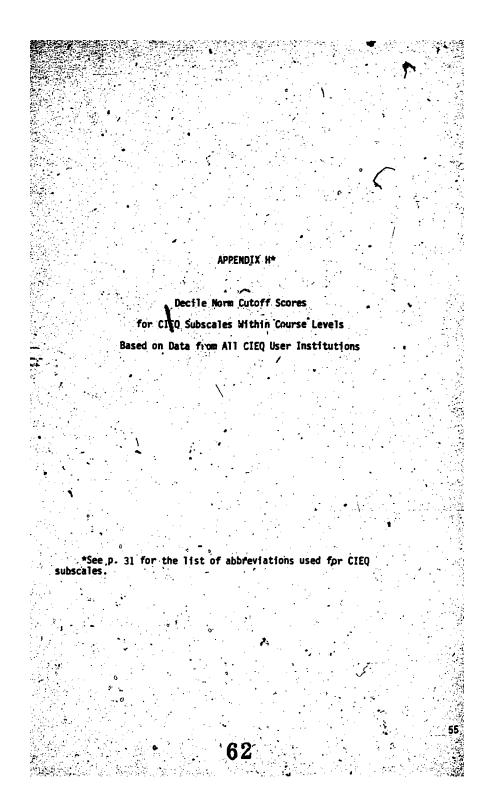




Table 22 Raw Score Intervals for CIEQ Subscale Means Based on 19,563 Class Sections at All CIEQ User Institutions

Subscale		_	•			neci le)				•	Mean	S.D.
· •			·	_	•		• ,		,	3 9		,	
GCA	1.000	2.626	2.851	3.001	3.121.	3.221	3,321	3.418	3.528	3.663	4.000	3,189	.394
MI	1.000	2.366	2.616	2:772	2,902	3.009	3,112	3,212	3.317	3.454	4.000	2.964	.419
CC	1.000	2.580	2.737	2.844	2.934	3.017	3,100	37187	3.287	3.417	4.000	3.015	.315
I&A	1.000	2.250	2.482	2.635	2,765	2.882	2,992	3.102	3.227	3.377	4.000	2.855	427
1.3	1.000	2.812	2,999	3.122	3,214	3.294	3,374	3.450	3.530 4	3.640	4.000	3.264	318
TOTAL '	1.000	2.562	2.760	2.900	3,007	3,100	3,190	3.280	3.380	3.507	4.000	3.071	356







Raw Score Intervals for CIEQ Subscale Means Based on 7,622 Freshman Class Sections at CIEQ User Institutions

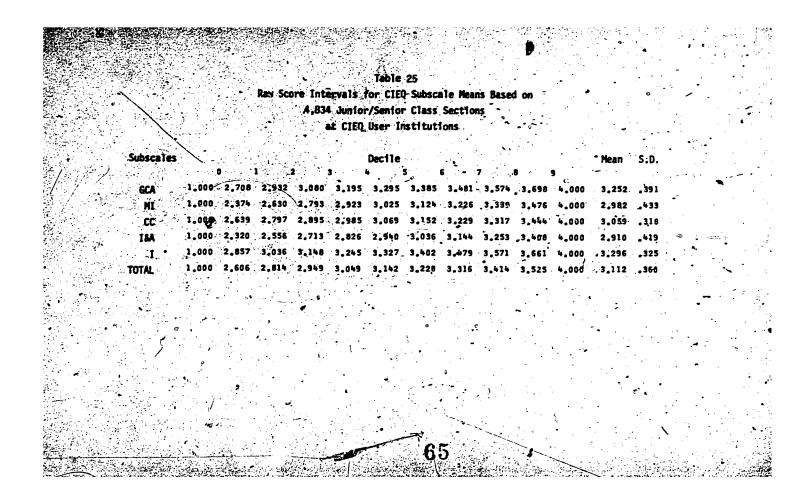
Subscale						. Deci le					· · · .	Mean	S.D.
	(0	1 :	2 .	3	4	5 (5 .	7 1	B - 9			٠.
GCA	1.000	2.568	2.775	2.923	3.042	.3.142	3.248	3,350	3.457	3.593	4.000	3,115	.389
MI	1.000	2.364	2.600	2,762	2,892	2.992	3.095	3,195	3,304	3.427	4.000	2,952	.407
CC	1.000	2.523	2.672	2.778	2.867	2,955	3.035	3,135	3.235	3.375	4.000	2,957	.316
												2.794	
- \ I -	1.000	2,792	2.977	3.099	3.192	3.264	3.335	3,415	3.495	3.594	4.000	3.231	.312
TOTAL .	. 1.000	2;522	2,718	2.847	2.958	3.054	3.145	3.237	·3.335	3.455	4.000	3.027	.353





Table 24 Raw Score Intervals for CIEO Subscale Heans Based on 4,421 Sophomore Class Sections at CIEO User Institutions Subscale Decile Pecile Sections 1,000 2,631 2,865 3,001 3,109 3,203 3,293 3,387 3,495 3,621 4,000 3,170 ,981 1,000 2,353 -2,623 2,766 2,893 2,991 3,095 3,180 3,286 3,423 4,000 2,950 ,408 1,000 2,259 2,751 2,851 2,931 3,013 3,086 3,158 3,248 3,382 4,000 3,004 305 1,180 1,000 2,259 2,751 2,851 2,746 2,850 2,952 3,054 3,174 3,220 4,000 2,2856 ,414 1,000 2,2852 2,766 2,810 2,786 2,786 2,850 3,553 3,174 3,320 4,000 3,247 316 1,000 2,252 2,788 2,880 2,988 3,080 3,162 3,250 3,348 3,468 4,007 3,053 349







A ...

Table 26 Raw Score Intervals for CIEQ Subscale Means Based on 2,181 Graduate Class Sections at CIEQ User Institutions

-Subscale	es		/	• •	. •		Decile					. 3.2	męan	3.0.
		0	1		2 -	3	4	5	6	7 8	, ,	3		
GCA	•	1.000	2.730	2.995	3,135	* 3.262	3.372	3.489	3,586	3.679	3.791	4.000	3,321	.424
JUI.		1.000	2.366	2,648	2.804	-2.940	3.060	3,166	3.284	3.404	3.550	4\$000	3.011	.465
€.,							3.136							
· 18A							3.028							
~		1.000	2,869	3.082	3,212	3,309	3.386	3.466	3, 550	3.626	3.735	4.900	3.348	.344
TOTAL		1.000	2,650	2.864	3,010	3,120	3.206	3,300	3.406	3,510	3,604	4.000	3,176	. 379



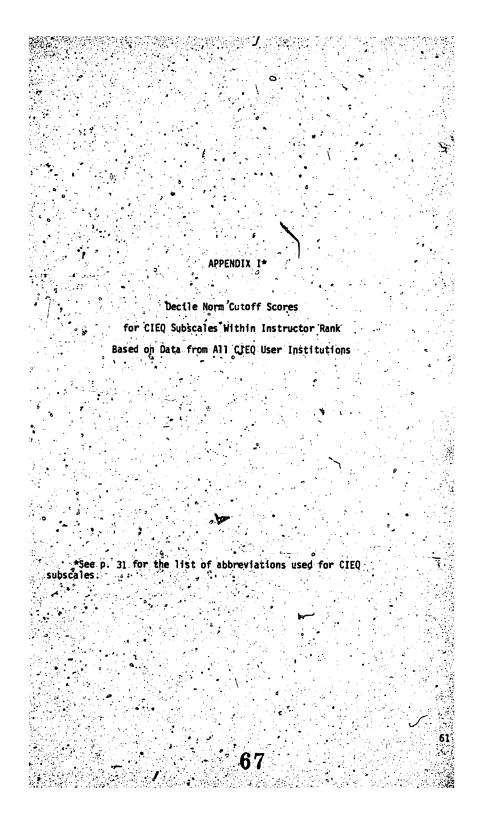




Table 27 Raw Score Intervals for CIEO Subscale Means Based on 4,901 Class Sections Taught by Graduate Teaching Assistants at CIEO User Institutions

		•											
Subscal	e	380				Deci le		,				liean	S.D.
GCA	1.000	2.506	2.704	2.844	2.949	3.049	3.144	3,242	7 3.360	8 3.512	9 4.000	3,034	.388
MI	1.000	2.326	2.553	2.706	2.826	2.928	3.025	1,128	3.230	3.355	4.000	2.892	.404
-CC I&A		2.475											
I		2.731											,326
TOTAL		2.475											.347
				· ·					-		•		
				- 4	•								•



Table 28 Raw Score Intervals for CIEQ Subscale Means Based on . 1,583 Class Sections Taught by Instructors at CIEQ User Institutions

Subsc	ale 🦼						Decile			4) ()		Mean S.D.
	•		0	1 :	?	3	4	5 (5 . 7	8	9 .	
GCA	•	1.000	2.733	2,979	3.108	3,218	3,324	3.412	3.502	3.595 3	.701 4.000	2.275 .375
MI	•	1.000	2.460	2.706	2.854	2.983	3.091	3.186	3.294	3.390 3	S10 4.000	3.044 .415
∘CC		1.000	2.663	2.819	2.924	3.020	3,103	3.183.	3,260	3.361 3	468 4.000	3.090 .318
I&A	1.	1.000	2.397	2.615	2.769	2.871	2,995	3.100	3.205	3.315 3	445 4.000.	2.966 413
1	•	1.000	2.870	3.041	3.167	3.257	3,343	3.418	3.488	3.567 3	659 4,000	3.308 .322
TOTAL	GASW	1.000	2.648	2.843	2.988	3.096	3.183	3.270	3.365	3.441 3.	S58 4.000	3.149 .351





Table 29 Raw Score Intervals for CIEO Subscale Means Based on 4,262 Class Sections Taught by Assistant Professors at CIEO User Institutions

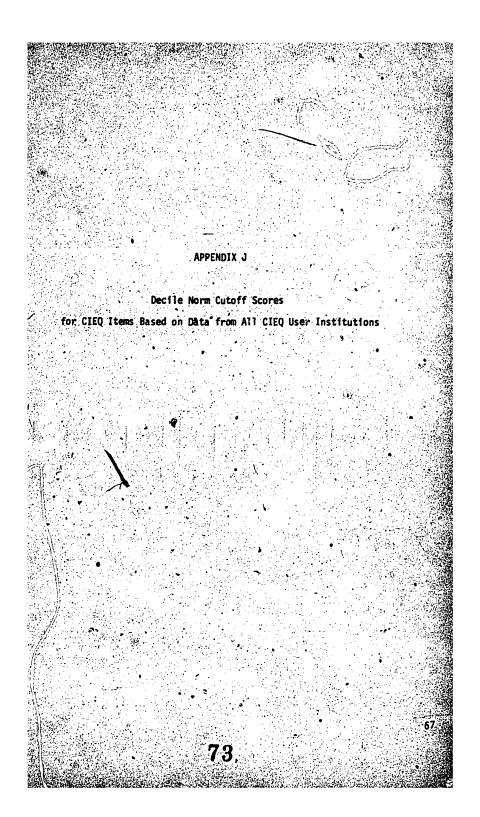
Subsc	ca l e		`\ 0	· · · · · · · · · · · · · · · · · · ·	2		Decile					.	Mean	S.D.
GCA	1	1.000	2.67	3 2.909	3.043	3.165	3.257	3.347	3.445	3.543	3.663	4.000	3.218	.386
MI				6 2.657										
CC				5 2,793										
I&A		1.000	2.32	2.551	2.709	2.815	2.921	3.021	3.141	3.253	3.387	4.000	2.896	.416
TOTAL				3.064										
														원 - " 국 -
														•















```
Table 32 (Continued)
                                 2,979 3.074 3.180 3.280
                                                         3.402 3.565 4.000
11
                     2.526 2.669 2.789 2.882 2.979 3.072 3.174 3.314 4.000
                           2.516 2.646 2.758 2.866 2.979 3.102 3.267 4.000
               2.997 3.209 3.346 3.446 3.539 3.619 3.702 3.779 3.879 4.000
        1.000 2.610 2.633 2.995 3.103 3.210 3.310 3.420 3.530 3.665 4.000
15
       1.000 2.335 2.562 2.712 2,840 2,990 3.075 3.190 3.322 3.495 4.000
     1.000 1.770 1.950 2.088 2.205 2.325 2.445 2.582 2.730 2.976 4.000
17
        1.000 2.380 2.667 2.847 2.987 3.104 3.212 3.324 3.437 3.594 4.000
18
                    2.767 2.927 3.057 3.170 3.277 3.390 3.502 3.647 4:000
19
                           3.149 3.252 3.347 3.424 3.510 3.610 3.734 4.000
                    2.865 3.002 3.145 3.255 3.362 3.472 3.582 3.717 4.000
```



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